

Application/Control Number: 10/774,256

Art Unit: 2837

page 2 of 16

In the specification:

Please edit the description of the preferred embodiment as follows (the edited version is also included as a appendix to this action):

5

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, and particularly to Figures 1-3, a preferred embodiment of the electronic synthesized steelpan drum of the present invention is shown and generally designated by the reference numeral 10.

In Figures 1 and 2, a new electronic synthesized steelpan drum 10 of the present invention for 10 producing true and pure steelpan tones is illustrated and will be described. More particularly, the electronic synthesized steelpan drum 10 is comprised of an outer housing 12 with a convex back surface 36 that has a stretched-cylindrical (oval) shaped top playing surface with a shallow vertical wall (skirt). In the current embodiment, the outer housing 12 is comprised of a lightweight material such as metal, wood or molded plastic. Additionally, pansticks are supplied
15 for striking the drum pads. In the present embodiment, the supplied pansticks are made of a hard rubber material, but conventional wood drumsticks may also be employed.

In this example, which is typical of a tenor steelpan, the top surface of the steelpan has a circular concave playing surface 14 towards one side with raised control functions located on the other side of oval shaped top surface. Approximately twelve striking pads 16 are arranged in a ring 20 near the outer perimeter of the playing surface. When the surface of one of these striking pads 16 is struck with a panstick, typically a lower frequency tone is produced. Additionally, there are typically twelve medium-sized rubber striking pads 18 arranged in a ring inside the outer ring, used to produce mid-frequency tones. Finally, four or more small rubber striking pads 20

Application/Control Number: 10/774,256

Art Unit 2837

page 3 of 16

are arranged in the center portion of the playing surface for producing higher-frequency tones. A pressure sensor is attached under each pad with the sensor outputs being connected to inputs of a central processor chip mounted on a circuit board inside the outer housing 12. Associated memory chips for storing a variety of synthesized steelpan sounds or tones, including tenor,

5 double tenor, soprano, double-seconds, guitar, double guitar, triple guitar, four-pan, cello, quadraphonic, tenor-bass, bass steel drums, six bass, nine bass, twelve bass and a full range of other musical orchestral and symphonic sounds are included on the circuit board and coupled to the central processor chip; function selection buttons 32 allow for the selection of the sound type and for user configuration of the striking pads. When one of the pads is struck, an appropriate 10 synthesized sound is produced and amplified through one or more speakers 22 included on the top surface of the instrument. The overall volume of the sound is controlled with equalized volume control buttons 24, also mounted in the control function area of the instrument, with the volume of each tone being further controlled by the amount of force applied to the pad and picked up by the pressure sensor. A control display monitor 26 and function selection buttons 32 15 are used to select different steelpan types and to configure the pads according to the layout of different steel pan instruments. Also, a compact disk (CD) burner/player input port/slot 30 can be added to the unit for loading additional digitized sounds, such as samples of different rhythms, and playing and recording music from the instrument for mixing with the steelpan sound. Optionally, musical instrument digital interface (MIDI) ports are included on the unit to 20 allow it to interface with other electronic or digital instruments and sound modules, as well. An output jack 38 is also be included for connecting the steelpan to an external audio amplifier for outdoor and/or large theater-type venues. The instrument has an electrical power cord 28 that plugs into a 110-volt AC receptacle for electrical power. Finally, a free-standing pan stand 34

Application/Control Number: 10/774,256

Art Unit: 2837

page 4 of 16

will accompany the steelpan drum for both functional and aesthetic purposes. The steelpan drum outer housing 12 will have a mounting means 35 attached to the sides, which will slide into slots 37 at the top of the free-standing pan stand 34, thereby allowing the electronic synthesized steelpan to be hung on a pan stand in a conventional manner.

5 Figure 3 is a block diagram 40 for the electronics used in synthesizing the steelpan drum of the present invention. The circuitry is contained on a circuit board that is mounted inside the instrument. At the center of this circuitry is the central processor 400 with its associated memory 402, which stores the digital data for the synthesized sounds. Also, the pressure sensors 404 that are associated with the pads are coupled to inputs of the central processing chip. The output of
10 the circuit is provided through audio drivers 406 and volume control circuitry 408 to one or more speakers 410 mounted on the outer surface of the synthesized steelpan drum 10. A CD burner/player 412 capability is provided for inputting other digital sounds for mixing with the steelpan sound and for recording music from the instrument. Finally, a power supply 414 is included to supply a low voltage DC voltage to the circuit board from a 110-volt AC source.
15 It can now be understood that the electronic synthesized steelpan of the present invention will electronically capture the unique and distinct "ping and ring" sound that comes from traditional steelpan instruments. This is achieved through advanced digital recording and storage within the built-in electronic chips, which allows the pannist to play music with full and easy control over the basic elements of sound type, tone, rhythm, melody, harmony, tone color, and equalized
20 volume, as well as control of the configuration of the sound pads. This can be carried out with the pannist playing the instrument in the traditional way that steelpans are played the world over. And since the electronic synthesized steelpan of the present invention requires much less setup and tuning time, the pannist can spend most of his/her time concentrating on the music.

Application/Control Number: 10/774,256

Art Unit: 2837

page 5 of 16

While a preferred embodiment of the electronic synthesized steelpan drum has been described in detail, it should be apparent that modifications and variations thereto are possible, all of which fall within the true spirit and scope of the invention. With respect to the above description then,

it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention. For example, any number of other desired sounds can be synthesized and added to the memory chips for providing other unique steelpan sounds. Also,

the housing of the steelpan drum may be made of lightweight metal, wood, molded plastic, or other similar material of similar weight and density.

Therefore, the foregoing is considered as illustrative only of the principles of the invention.

Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and

described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.